

# SAMANCOR CHROME FERROMETALS

# **BASIC ASSESSMENT REPORT**

## **DRAFT FOR I&AP REVIEW (40 Days)**



Date: 19 February 2015 JMA Project Number: 10427 JMA File Reference: Prj 5816 **DEA Reference:** 12/9/11/L144116/6 **DEDET Reference:** 17/2/3N-386 **DWS Reference:** 16/2/7/C231/B18/Y1/1



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Sustainable Environmental Solutions through integrated Science and Engineering

JMA/10427 DEA Reference Number: 12/9/11/L144116/6 DEDET Reference Number: 17/2/3N – 386 DWS Reference Number: 16/2/7/C231/B18/Y1/1

19 February 2015

### ATTENTION: INTERESTED AND AFFECTED PARTIES

Dear Sir / Madam

### RE: PROPOSED DECOMMISSIONING AND CLOSURE OF THREE (3) HISTORICAL SLIMES DISPOSAL FACILITIES AT THE FERROMETALS OPERATION, EMALAHLENI

With reference to the above mentioned, the documentation included with this submission is to support the formal Basic Assessment (BA) Process as defined by the National Environmental Management Act (NEMA), Act No. 107 of 1998 and consists of the following:

- 1. The completed **Basic Assessment Report (BAR) Template (Section A Section F)** as provided by the Mpumalanga Department of Economic Development, Environment and Tourism (DEDET) version 1 August 2010.
- 2. The Appendices listed in Section F of the BAR Template which comprises of:
  - a. Appendix A: Site Plan
  - b. **Appendix A1**: Mpumalanga Biodiversity Conservation Plan (MBCP) Terrestrial Biodiversity Assessment
  - c. **Appendix A2**: Wetland Features as indicated by the National Freshwater Ecosystem Priority Areas (NFEPA) Database 2011
  - d. Appendix B: Site Photographs
  - e. Appendix C: Facility Illustrations
  - f. **Appendix D1**: Specialist Report: Historical Slimes Rehabilitation Design Report and DWS Correspondence
  - g. **Appendix E**: Proof of submission and delivery of the Draft Basic Assessment Report to all State Departments and Organs of State involved in this project; *to be included in the Final BAR*
  - h. **Appendix F**: Issues (Comments) and Response Register; *to be included in the Final BAR*
  - i. **Appendix G**: Draft BAR and Draft Environmental Management Programme (EMP) and relevant appendices
- 3. Comment forms to be completed by I&AP's.

If you require any additional information or clarification please do not hesitate to contact the undersigned.

2005/039663/07

## **DETAILS OF THE CONSULTANT:**

Consultant:		u Plessis (Cand.Sci.Nat) nsulting (Pty) Ltd
	Tel:	(013) 665 1788
	Fax:	(013) 665 2364
	Email:	<u>kobus@jmaconsult.co.za</u>
	Postal:	P.O. Box 883
		Delmas
		2210

Yours sincerely

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Kobus Du Plessis (Cand.Sci.Nat) LET8309





## Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

	(For applicant / EAP to complete)
File Reference Number:	
Project Title:	
Name of Responsible Official:	
	_(For official use only)
NEAS Reference Number:	
Date Received:	

#### Kindly note that:

- 1. Required information must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. Tables can be extended as each space is filled with typing.
- 2. Where applicable **black out** the boxes that are not applicable in the form.
- 3. An incomplete report may be returned to the applicant for revision.
- 4. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
- All reports (draft and final) must be submitted to the Department at the address of the relevant DISTRICT OFFICE given below or by delivery thereof to the relevant DISTRICT OFFICE. Should the reports not be submitted at the relevant district office, they will not be considered.
- 6. No faxed or e-mailed reports will be accepted.
- 7. One copy of the draft version of this report must be submitted to the relevant district office. The case officer may request more than one copy in certain circumstances.
- 8. Copies of the draft report must be submitted to the relevant State Departments / Organs of State for comment. In order to give effect to Regulation 56(7), proof of submission/delivery of the draft documents to the State Departments / Organs of State must be attached to the draft version of this report.
- 9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
- 10. All specialist reports must be appended to this document, and all specialists must complete a declaration of independence, which is obtainable from the Department.



### SECTION A: BACKGROUND INFORMATION

Project applicant:	Ferrometals – a Business Unit	of Samancor	Chrome Limited		
Trading name (if any):	Ferrometals – a Business Unit of Samancor Chrome Limited				
Contact person:	Ellie Wheal				
Physical address:	1 Moses Kotane Drive, Emalahleni (Witbank), Mpumalanga				
Postal address:	Private Bag X7228, Witbank,				
Postal code:	1035	Cell:			
Telephone:	013-693 7205 Fax: 013 696 2800				
E-mail:	ellie.wheal@samancorcr.com				

Environmental Assessment Practitioner:	JMA Consulting (Pty) Ltd				
Contact person:	Riaan Grobbelaar				
Postal address:	PO Box 883, Delmas				
Postal code:	2210 Cell: 082 452 1231				
Telephone:	013 665 1788 Fax: 013 665 2364				
E-mail:	Riaan@jmaconsult.co.za				
Qualifications:	M.Sc Geohydrology				
Professional affiliations (if any):	Pr.Sci.Nat Council for Profes	ssional Scientist			

### SECTION B: DETAILED DESCRIPTION OF THE PROPOSED ACTIVITY

Describe the activity, which is being applied for, in detail. The description must include the size of the proposed activity (or in the case of linear activities, the length) and the size of the area that will be transformed by the activity.

The activity relates to the decommissioning of three Historical Slimes Dams Facilities at the Ferrometals Site, a Business Unit of Samancor Chrome Limited. The Mine is located near the town of Emalahleni (formerly Witbank) in the Emalahleni Local Municipality within the Nkangala District Municipality.

The Historical Slimes Dams Facilities are no longer in operation. The Historical Slimes Dams Facilities consist of three small slimes tailings dams referred to as the South Slimes Dam. East Slimes Dam and the Stores Slimes Dam.

Historical Slimes Dam	Footprint ha	Max Height m	Estimated Dam Volume m <sup>3</sup>
South Slimes Dam	1,48	6,84	45000
East Slimes Dam	2,57	3,60	65700
Stores Slimes Dam	0,23	1,50	5800

The South- and East Slimes Dams if properly rehabilitated will not extent the already effected footprints and from an economical perspective and stability perspective in situ rehabilitation seems to be the most viable option. It's recommended that the small Stores Slimes Dam should be removed and stockpiled at the South Slimes Dam.

The Slimes Dams will be treated as Hazardous Waste facilities. Schedule No. R.636 published under the National Environmental Management: Waste Act of 2008, Act No. 59 of 2008, section 7(1)(c) requires hazardous waste to be contained in a Class A Landfill. Therefore the requirement for any new slimes tailings facility to stockpile Ferrometals slimes would require a Class A Landfill. At closure the Class A Landfill or tailings facility should be capped with a specified capping configuration as detailed in the Minimum Requirements. It requires a double composite liner system with leakage detection system. When no bottom containment barrier is present, which is the case at the historical slimes dams, the final cover detail must be extended by providing a flexible membrane below the cover soil with the clayey layers to be 4 x 150mm thick. It is accepted by DWAS that the clayey soil layers may be replaced with a Geosynthetic Clay Layer (GCL) which is +-10mm thick unhydrated.



The Historical Slimes Dams Facilities do not have a base barrier and the minimum requirements implies that in such case that the capping must ensure that the ingress of precipitation into the waste body to generate leachate must be prevented. Therefore in the absence of a required base barrier the proposed capping detail consists from top to bottom of:

- 450mm topsoil layer;
- 2mm Flexible membrane (FML);
- Geosynthetic Clay Layer (GCL) and
- 150mm capillary break and drainage layer.

Finally, the capped and shaped landfill site will be re-vegetated and monitored.

### SECTION C: PROPERTY/SITE DESCRIPTION

Provide a full description of the preferred site alternative (farm name and number, portion number, registration division, erf number etc.):

Ferrometals is situated on the farm Driefontein 297 JS near the town of Emalahleni (formerly Witbank) in the Emalahleni Local Municipality within the Nkangala District Municipality.

Alternatives considered in terms of the property/location where the activity (decommissioning of the three Historical Slimes Dam Facilities) will take place are not deemed relevant, as the three Historical Slimes Dam Facilities are situated within Ferrometals property boundary (Portion's 9 & 12 of the farm Driefontein 297 JS) which represents a brown fields situation. The assessment of alternative land uses is therefore not relevant to this application as the current land use will not be compromised by the activity associated with the current application process.

Had the Ferrometals site represented a green field's locality, more alternatives would have been available for consideration. However with only the Historical Slimes Disposal Facilities to be decommissioned it limits the alternatives to consider.

Indicate the position of the activity using the latitude and longitude of the centre point of the preferred site alternative. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection. The position of alternative sites must be indicated in Section B of this document.

#### South Slimes Dam

Latitude (S	;):	Longitude	(E):
25°	51.653'	29°	10.159'

#### **East Slimes Dam**

Latitude (S):		Longitude (E):		
25°	51.656'	29°	10.670'	

#### Stores Slimes Dam

Latitude (S):		Longitude (E	:):
25°	51.240'	29°	10.244'

In the case of linear activities:

	Latitude (S	5):	Longitu	de (E):	
Starting point of the activity	0	¢	0	٤	
Middle point of the activity	0	£	0	£	
End point of the activity	0	"	0	٤	

#### SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as an appendix to this document.

The site or route plans must be at least A3 and must include the following:

- 6.1 a reference no / layout plan no., date, and a legend / land use table
- 6.2 the scale of the plan which must be at least a scale of 1:2000;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all indigenous trees taller than 1.8 metres and all vegetation of conservation concern (protected, endemic and/or red data species);



The study area covers a portion of the remaining extent of the vulnerable Eastern Highveld Grassland vegetation type. The vegetation within the study area however has undergone irreversible loss of natural habitat, thus lowering the overall sensitivity of vegetation found within the study area.

According to the National Protected Area Expansion Strategy (NPAES), the study area is not located within a formal or informal NPAES protected area or within a NPAES Focus Area.

The study area is located in the Mpumalanga Province (QDS 2529CC). The terrestrial biodiversity assessment of the Mpumalanga Biodiversity Conservation Plan (MBCP) indicates that habitat is classified as "least concern" and that the majority of the study area is classified as "no natural habitat remaining" (**Appendix A1**). These areas have been largely transformed due to alien vegetation encroachment, where biodiversity has been irreversibly changed and virtually dysfunctional.

The Freshwater Ecosystem Priority Area (FEPA) database was consulted to define the ecology of wetland or river systems close to or within the study area that may be of ecological importance. No wetland or river systems were indicated by the FEPA database for the study area (**Appendix A2**). Two wetland types were located within the 500 m radius of the subject property, namely channelled valley bottom wetland feature and flat wetlands features. The flat wetland features can be further classified as artificial wetlands.

6.8 servitudes indicating the purpose of the servitude;

- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - watercourses and wetlands;
    the 1:100 year flood line;
  - the 1:100
     ridges:
  - ridges;
  - cultural and historical features;
- 6.9 10 metre contour intervals

An A3 locality map detailing the information listed above is attached as Appendix A to this form.

#### SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached as an appendix to this form.

Colour photographs were taken from the centre of all three footprints on the site, which needs to be decommissioned, in the eight major compass directions and are attached as **Appendix B** to this form.

#### **FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of 1:200 as an appendix for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A realistic and representative image of the activities is attached as Appendix A to this form.



### SECTION D: BASIC ASSESSMENT REPORT

Prepare a basic assessment report that complies with Regulation 22 of the Environmental Impact Assessment Regulations, 2010. The basic assessment report must be attached to this form and must contain all the information that is necessary for the competent authority to consider the application and to reach a decision contemplated in Regulation 25, and must include:

		(Checklist for official
1.	A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity.	use only)
2.	An identification of all legislation and guidelines that have been considered in the preparation of the basic assessment report.	
3.	<ul> <li>Details of the public participation process conducted in terms of Regulation 21(2)(a) in connection with the application, including – <ul> <li>(i) the steps that were taken to notify potentially interested and affected parties of the proposed application;</li> <li>(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;</li> <li>(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 55 as interested and affected parties in relation to the application; and</li> <li>(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;</li> </ul> </li> </ul>	
4.	A description of the need and desirability of the proposed activity;	
5.	A description of any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity;	
6.	<ul> <li>A description and assessment of the significance of any environmental impacts, including—</li> <li>(i) cumulative impacts, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the activity;</li> <li>(ii) the nature of the impact;</li> <li>(iii) the extent and duration of the impact;</li> <li>(iv) the probability of the impact occurring;</li> <li>(v) the degree to which the impact can be reversed;</li> <li>(vi) the degree to which the impact can be mitigated;</li> </ul>	
7.	Any environmental management and mitigation measures proposed by the EAP;	
8.	Any inputs and recommendations made by specialists to the extent that may be necessary;	
9.	A draft environmental management programme containing the aspects contemplated in regulation <b>33</b> ;	
10.	A description of any assumptions, uncertainties and gaps in knowledge;	
11.	A reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	
12.	Any representations, and comments received in connection with the application or the basic assessment report;	
13.	The minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;	
14.	Any responses by the EAP to those representations, comments and views;	
15.	Any specific information required by the competent authority; and	
16.	Any other matters required in terms of sections 24(4)(a) and (b) of the Act.	

#### The basic assessment report must take into account -

- (a) any relevant guidelines; and
- (b) any departmental policies, environmental management instruments and other decision making instruments that have been developed or adopted by the competent authority in respect of the kind of activity which is the subject of the application.

\* In terms of Regulation 22(4), the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in subregulation 22(2)(h), exist.



Have reasonable and feasible alternatives been identified, described and assessed?
------------------------------------------------------------------------------------

YES

If NO, the motivation and investigation required in terms of Regulation 22(4) must be attached as an Appendix to this document

A Draft Basic Assessment Report (BAR) was prepared to include information listed above and is attached as **Appendix G** to this report.

### SECTION E: CONSULTATION WITH OTHER STATE DEPARTMENTS

Provide a list of all State Departments / Organs of State that have been consulted and registered as interested and affected parties, and to whom draft reports have been submitted for comment. **Proof of submission / delivery of the draft report to all State Department / Organs of State must be attached to this document.** 

Department:	Department of Economic Developme	ent, Environme	nt and Tourism (DEDET)
Contact person:	Selape Lentswana (Case Officer)		
Postal address:	P.O. BOX 383, Witbank		
Postal code:	1035 Cell:		
Telephone:	013) 692 6300 Fax: 013) 690 3704		
E-mail:	lsmatawane@mpg.gov.za		

Department:	Department of Environmental Affairs (DEA)		
Contact person:	Malepo Phoshoko (Case Officer)		
Postal address:	Private Bag X447, Pretoria		
Postal code:	0001	Cell:	
Telephone:	012) 399 9779	Fax:	
E-mail:	msphoshoko@environment.gov.za		
_			
Department:	South African Heritage Resources Agency (SAHRA)		
Contact person:	Jenna Lavin		
Postal address:	PO Box 4637, Cape Town		
Postal code:	8000	Cell:	
Telephone:	021) 462 4502	Fax:	021) 462 4509
E-mail:	jlavin@sahra.org.za		

Proof of submission and delivery of the Draft Basic Assessment Report to all State Department and Organs of State involved in this project will be attached as **Appendix E** to the Final Basic Assessment Report.



### **SECTION F: APPENDICES**

The following appendices must be attached to the basic assessment report as appropriate:

Appendix A: Site Plan (A3)

- Appendix A1: Mpumalanga Biodiversity Conservation Plan (MBCP) Terrestrial Biodiversity
   Assessment
- Appendix A2: Wetland Features as Indicated by the National Freshwater Ecosystem Priority Areas (NFEPA) Database (2011)

Appendix B: Site Photographs

Appendix C: Refer to Appendix A for the Facility illustration(s)

Appendix D: Specialist report: Historical Slimes Rehabilitation - Design Report and DWAS Correspondence

**Appendix E**: Proof of submission and delivery of the Draft Basic Assessment Report to all State Department and Organs of State involved in this project. To be included in Final Basic Assessment Report.

Appendix F: Issues (Comments) and Response Register. To be included in Final Basic Assessment Report.

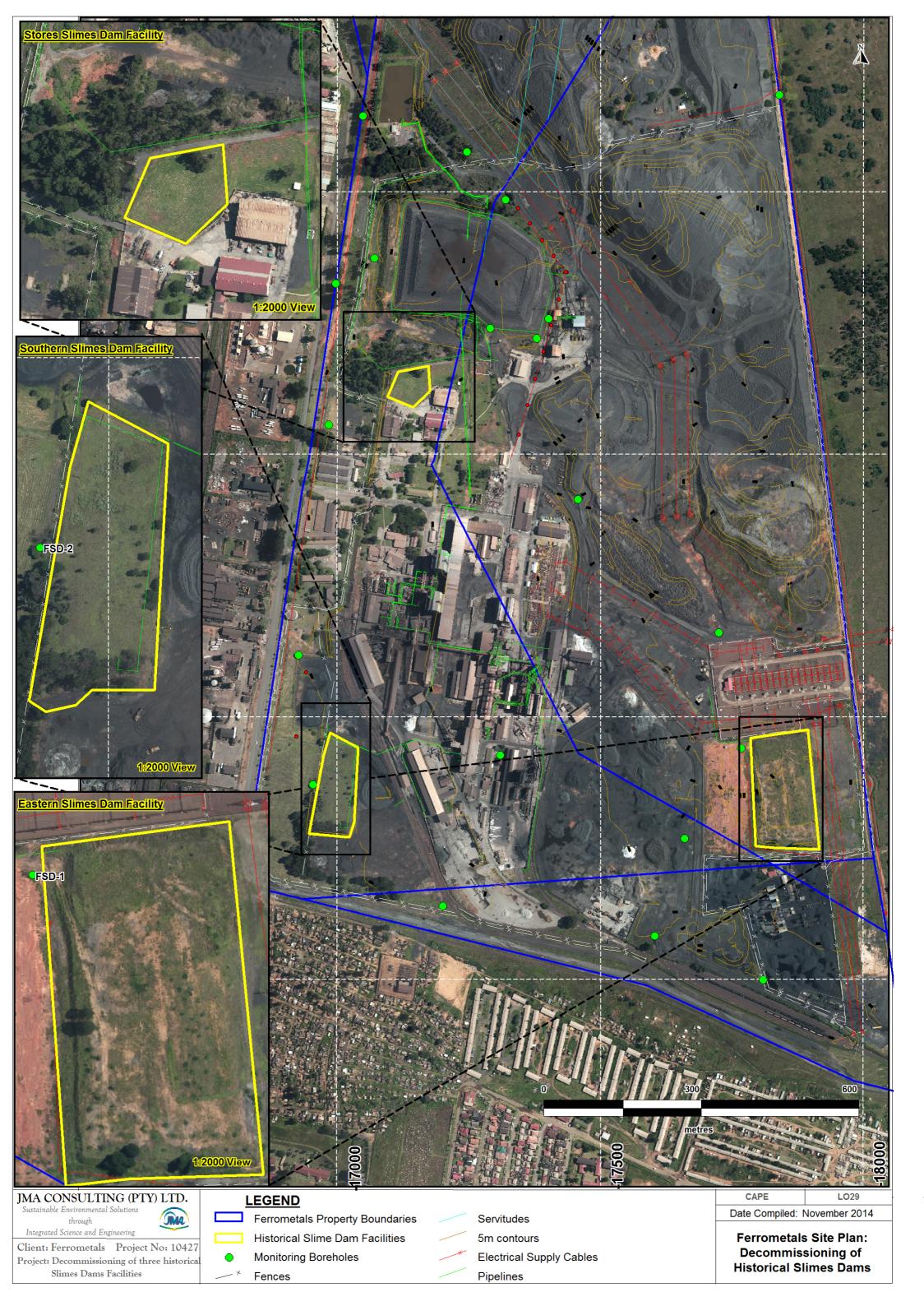
**Appendix G:** Draft Basic Assessment Report (BAR) and Draft Environmental Management Programme (EMP)



# **APPENDIX** A

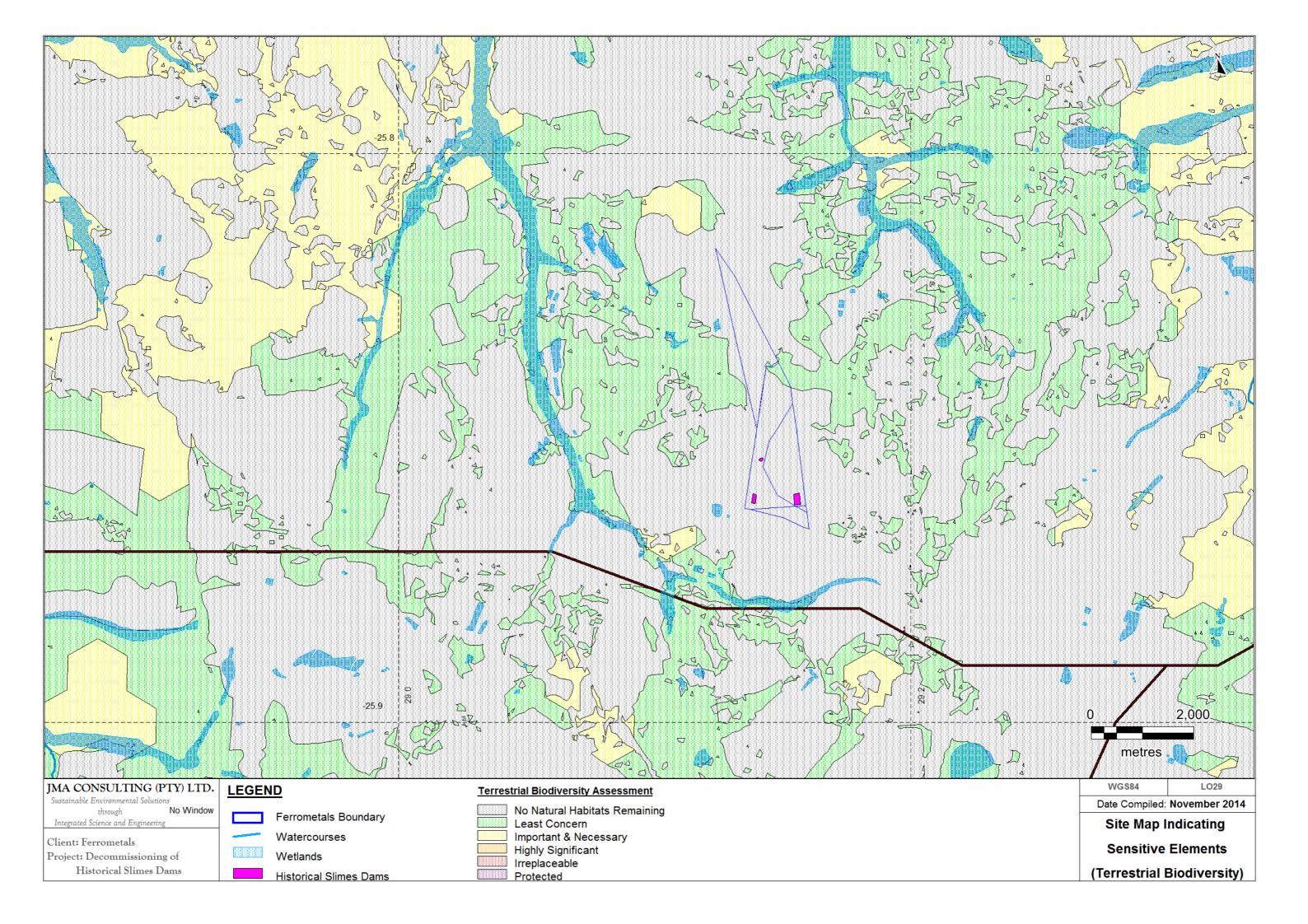
Site Plan

SAMANCOR CHROME FERROMETALS BASIC ASSESSMENT REPORT



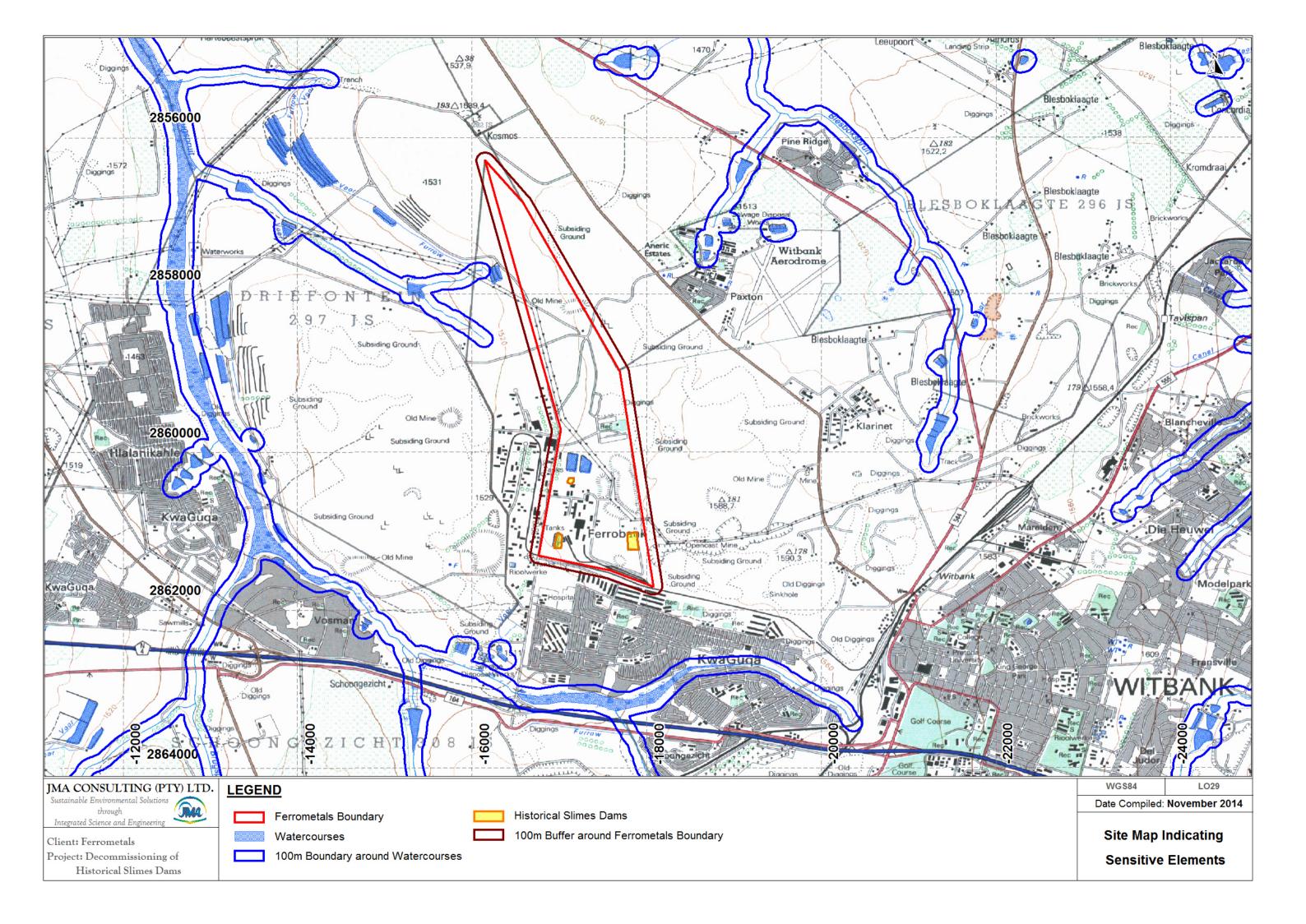
# **APPENDIX** A1

Mpumalanga Biodiversity Conservation Plan (MBCP) Terrestrial Biodiversity Assessment



# **APPENDIX A2**

Wetland Features as Indicated by the National Freshwater Ecosystem Priority Areas (NFEPA) Database (2011)



# **APPENDIX B**

Site Photographs

SAMANCOR CHROME FERROMETALS BASIC ASSESSMENT REPORT

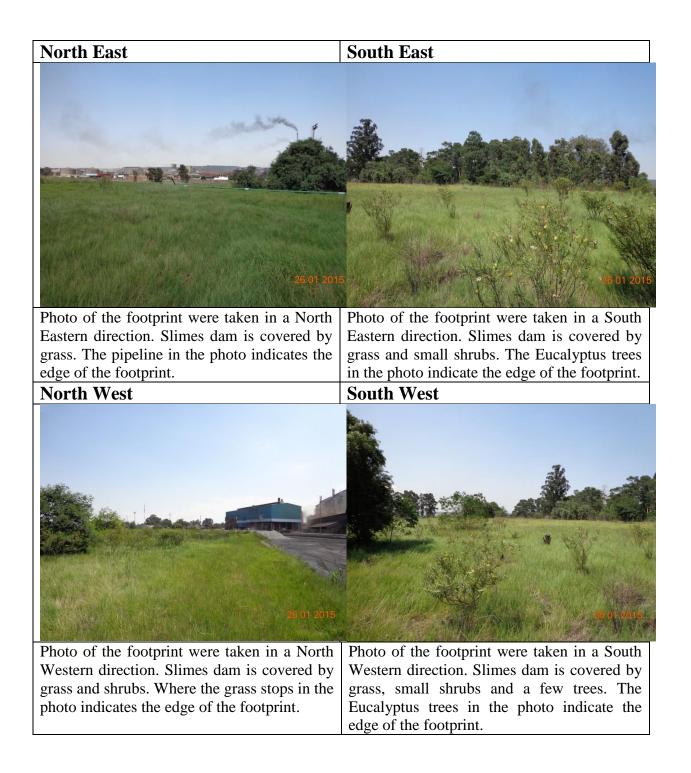
## Photos of the three Historical Slimes Dam Facilities

The Photos were taken from the middle of the site in the eight major compass directions.

## South Slimes Dam

Latitude (S):		Longitude (E):	
25°	51.653'	29°	10.159'





## **East Slimes Dam**

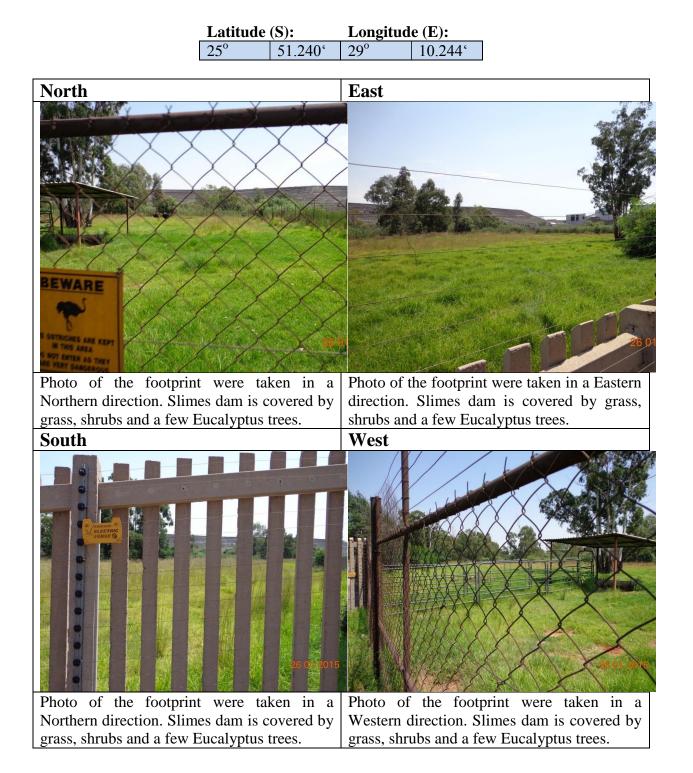
	Latitude (S):           25°         51.656°	Longitude (E):           29°         10.670'
North		East
	26.01	
Photo of the footprir Northern direction. Slim grass and shrubs.		Photo of the footprint were taken in a Eastern direction. Slimes dam is covered by grass.
South		West
Photo of the footprin	2601	Photo of the footprint were taken in a

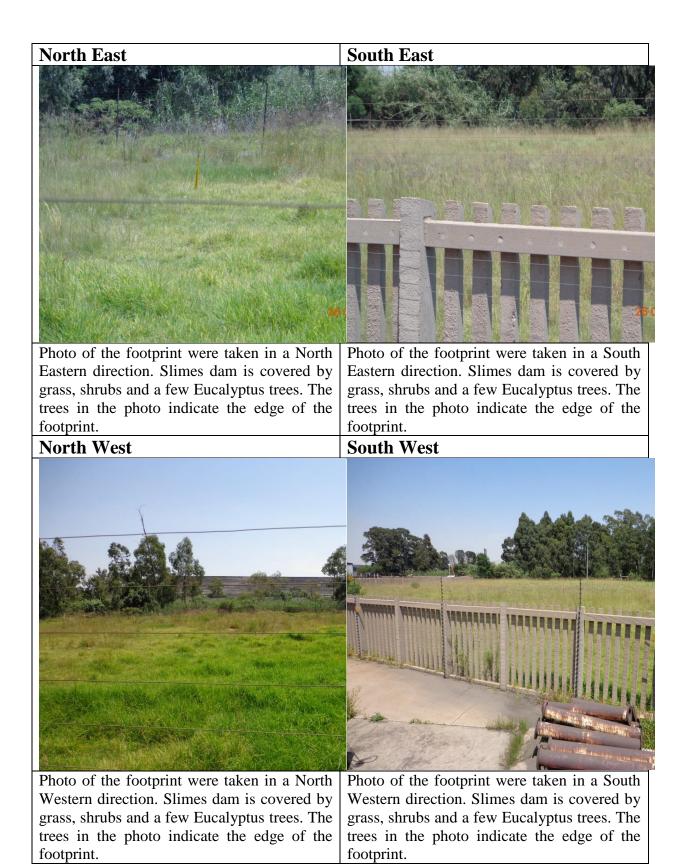
Photo of the footprint were taken in a Photo of the footprint were taken in a Southern direction. Slimes dam is covered by grass and some trees on the edge of the footprint.

Western direction. Slimes dam is covered by grass and shrubs.

North East	South East
26 01 20	
Photo of the footprint were taken in a North Eastern direction. Slimes dam is covered by grass and shrubs. Power lines in photo indicate the North Western side of the footprint.	Photo of the footprint were taken in a South Eastern direction. Slimes dam is covered by grass.
North West	South West
Photo of the footprint were taken in a North Western direction. Slimes dam is covered by grass and shrubs. Power lines in photo indicates the North Western side of the footprint	Photo of the footprint were taken in a South Western direction. Slimes dam is covered by grass.

## **Stores Slimes Dam**





# **APPENDIX C**

Facility Illustration(s)

SAMANCOR CHROME FERROMETALS BASIC ASSESSMENT REPORT

